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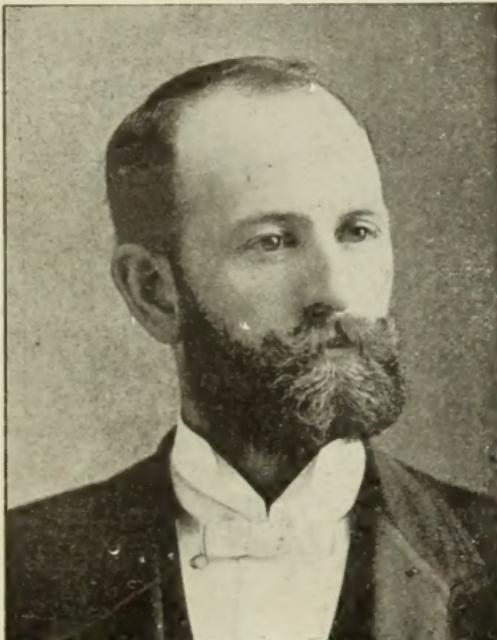
IF a man can write a better book, preach a better sermon, or make a better mousetrap than his neighbor, though he builds his house in the woods the world will make a beaten path to his door.

—*Ralph Waldo Emerson.*

✓ \$100 HEN

HOW TO GET HER

—BY—



DR. WALLACE V. WOLVIN

*Engraving by
McDermid Engraving Co.*

*Printing by
Farm & Orchard Pub. Co*

SPOKANE, WASHINGTON

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CONTENTS

Twenty-four cuts of the most popular breeds.

It tells how to erect the best poultry house in use; gives cuts, the number of feet of material, cost, etc., etc.

It tells you how to test your eggs so they will hatch, and gives cuts showing different stages of fertility.

It tells you the effect of altitude on the hen and egg.

It tells you why your eggs do not hatch and the cause of chicks dying in the shell.

It gives you prescriptions and receipts for lice, mite powders and liquids.

It gives you formulas for whitewash as good as most paints

It gives you the great egg-laying formulas.

It gives numerous prescriptions for all kinds of mashes and chick food.

It gives formulas for spraying and disinfecting.

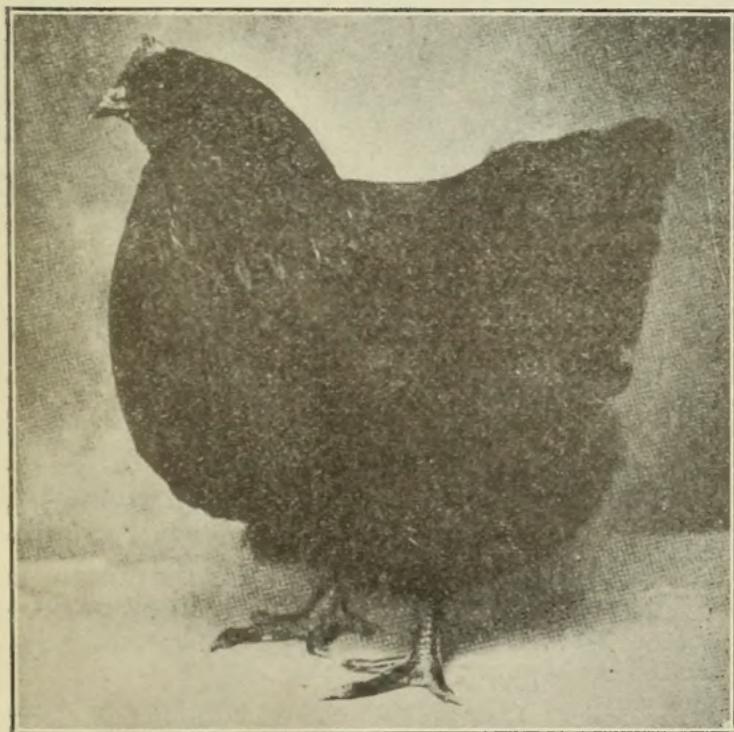
It gives many useful, and valuable hints on general poultry keeping and advice of forty years' experience.

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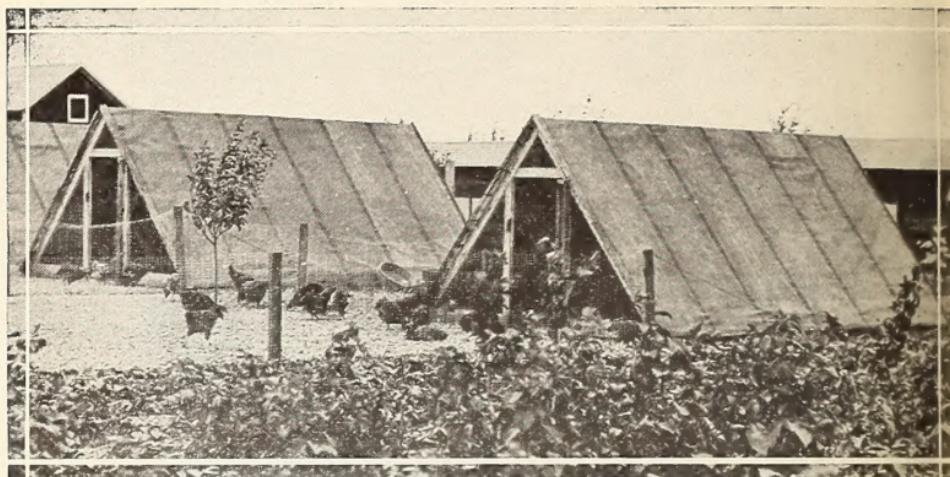
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PRINCESS SPOKANE
Black Orpington--The Author's Pet



THE A SHAPE HOUSE

THE POULTRY HOUSE

After examining various poultry houses and plants throughout the United States; considering statistics and numerous plans from other countries, I have come to the conclusion that the open front A-shape house designed and in use by John Pfeffer and Sons of Hillyard, Washington, is the cheapest, most convenient and most sanitary for all purpose poultry house in use at the present time.

By the courtesy of Mr. Pfeffer the following dimensions are given:

230 lineal feet 2x4 for sills and ends; 3 pieces 2x4-14 feet long for roosts; 22 pieces 2x4-12 feet long for rafters; 850 feet number 3 common boards for end and roof;; 8 rolls of one-ply roofing; 24 feet of wire netting four feet wide for front; 10 lbs. of 20-penny nails, and a few wire staples.

Total cost of material, \$27.00.

This makes a house 16x30 and will accommodate 50 to 100 fowls. The floor should be raised about six inches with good clean sand such as is used for plastering.

These houses can be made any size desired, but this size is the most suitable for general purposes.

The above with small queen stove enclosed by screen makes an ideal house in which to raise early chicks.

CARE OF LITTLE CHICKS

Do not put large number of chicks together in one compartment, as they form too great a weight when they get together to go to sleep.

The weaker ones among them are bound to be smothered and crushed.

Also, so many chicks in one bunch cause a great deal of animal heat during the night, which together with the heat of the brooder makes a sort of hot house plant of the chicks that have to live under such conditions.

In the morning when they come out for their feed they are hot and "steamy" and the moment outside air strikes them they suffer a chill, and that means sickly chicks, and as a consequence, number of dead ones.

Don't make the mistake so many others have made, before they learned that the best way to raise chicks after they were hatched is to put them in smaller bunches—fifty to seventy-five chicks each.

Use more small brooders. The extra number of chicks saved and raised, more than pays for the extra expense and trouble of the additional brooders.

Also remember that two very essential things to baby chicks are sunshine and exercise. Also see that the brooder and coops are kept perfectly clean. Lice and mites will thrive in filthy quarters. Bowel trouble is about the first indication of a sick chick, and it is brought on by several causes, such as filthy quarters, lice, mites, crowding, over-heating, chilling. The kind of food also comes in for its share of the trouble.

The proper thing to do is to care for them so that they will not get sick.

Sometimes when it is noted that chicks have bowel trouble on account of feed or water, they may be helped by taking a half teaspoonful of carbolic acid and putting it in a quart of water, stirring it up well, and giving to them to drink. While this is a poison it is also a germicide and the chicks drink so little of it at a time that you need have no fear to give it to them.

FEEDING

A little chick needs no food until it is 36 or 50 hours old.

The yolk of the egg serves as food for the chick just after it is hatched. This yolk is absorbed by the chick during the last days of its incubation and serves for its food for the first 36 to 50 hours. The best consideration that you can show a little chick for the first few hours of its life is to keep it quiet and warm.

One of the first things a newly hatched chick needs is pure water and some fine sand. After it is forty-eight hours old it may be fed some dry feed; (never feed sloppy food) the food that gives the best results is some kind of dry balanced food which contains a variety of grains, seeds and meat. A good food is made by mixing the following ingredients in the proportions stated: Cracked wheat, 5 parts; steel-cut oats, 1 part; millet seed, 3 parts; granulated meat meal, not fertilizer refuse, 1 part; ground oyster shells, 2 parts.

Pay particular attention to the feeding and watering.

The best results will be had if you feed and water the chicks often and give them a little at a time. From four to six times a day is about right.

MAKE 'EM SCRATCH

Scatter the food in a litter of some kind and keep the little chicks busy. Feed little at a time, but often, but be very careful not to overfeed. It is a good plan to keep them a little hungry. This will force them to exercise in hunting for the grain in the litter.

Scald out the drinking fountain at least once a week—and if the water you have to give the chicks is not pure—boil it before you give it to them.

Don't leave the drinking water before them all day and night.

Let them drink until they quit drinking, then remove the drinking fountain.

DO YOUR HENS LAY? WHY NOT?

There are three things essential to make hens lay. Supply those and you will have the eggs you wish.

1st.—Hens must have a warm house and be kept out of the cold north winds in the winter. By warm houses we do not mean that it is necessary to have them heated, plastered or cemented, as a single boarded house covered with tarred felt is good enough if you will protect the north and west sides

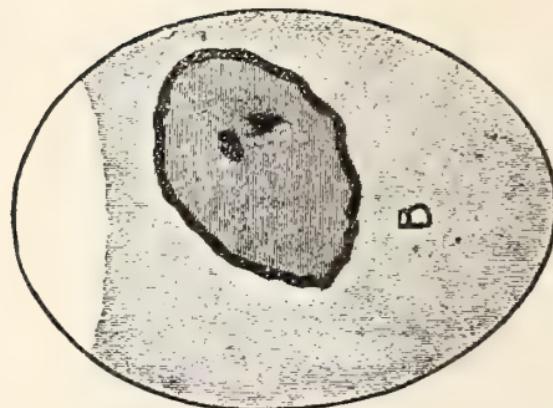
with litter or straw in the winter, and make the birds a place to get out of the wind. A scratching shed is a good thing.

2nd.—Exercise is essential. Throw the dry feed you give them into straw and let them dig for it and keep them digging all day. Give a mash at night made of alfalfa meal, brown shorts and fine corn meal. Give one quart of meat scraps to ten fowls every other day and always have good fresh water before them all the time and you will have eggs. It has been

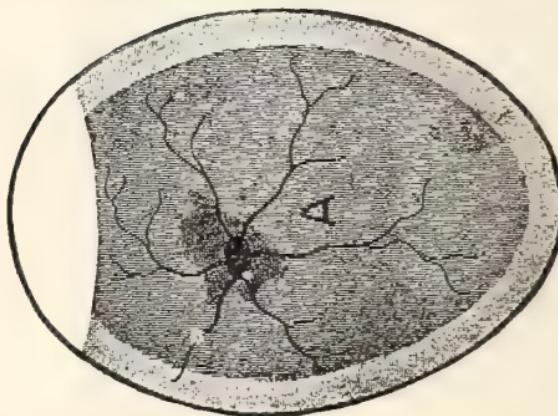


WHITE ORPINGTON COCK

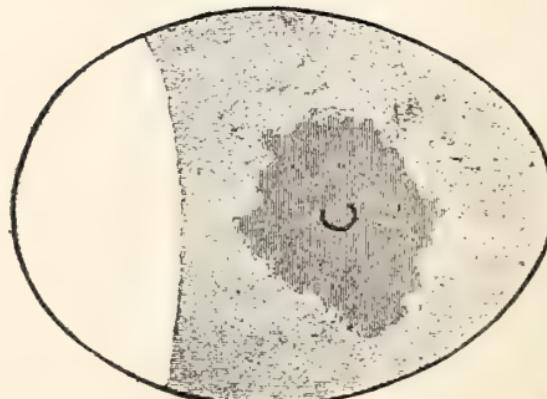
clearly proven by experiments that corn should not form the greater proportion of the grain ration for laying hens. It is too fattening, especially for hens kept in close confinement. Until the past few years corn has been considered the universal poultry food of America, which undoubtedly was due to the cheapness of that cereal. Now we find farmers and fanciers feeding more liberal rations of wheat, barley, oats, buckwheat and caffir corn, which has wonderfully increased the egg production, even beyond their most sanguine expectations.



B...WEAK EGG



A...FERTILE EGG.



C...STALE EGG.

TESTING FOR INFERTILE EGGS

On the seventh or eighth day after you have "set" the eggs in the incubator or under the hen, you may test them, so as to find and remove from the tray, all eggs not fertile, that is, eggs that will not hatch.

To do this take a piece of blue cardboard and bend it into a cylinder and tie it with a piece of wire. Run the wire or cord through in such a way that it will remain in the form of a cylinder. Then set it over the lamp, with the hole in the cylinder directly in front of the eisinglass in the lamp flue.

Or the paper cylinder may be put over any other lamp. In fact any lamp will do. Then darken the room and take out the egg tray and pass each egg before the tester, holding the large end of the egg up to the hole in the tester. If the egg is fertile you will see the germ as it has started to develop the chick.

You will notice a dark spot in the egg with little spider-like legs radiating from it. And the stronger this appears the stronger will be the chick. In thin, white-shelled eggs you can see that these are blood vessels which have just formed.

The accompanying cut marked "A" will give you an idea of the way the egg will appear to you when you test it as above indicated—about the eighth day.

Cut "B" is an indication of what a weak germ in an egg will look like as you test it.

Cut "C" indicates the condition of an egg that has become stale and will not hatch. In testing on the 8th day, all fertile eggs will be shown to be nearly full of a dark mass and many blood vessels will appear to be darker than the surrounding parts. Also on the 8th day the infertile eggs will appear nearly transparent, that is, clear—or having but a small dark spot.

If in testing to see that some eggs have a considerable portion of their contents dark, and yet not dark enough and full enough to convince you that they are as strong and as far developed as the eggs which do show—you can mark these with a "D" for doubtful and leave them in to be tested again later on—say about the 14th day.

As soon as you are certain that an egg is infertile throw it out. Such eggs in the incubator are harmful to the good ones.

Also the bulb of the thermometer should always rest on a fertile egg—and you don't want the thermometer to be affected by anything but the heat of the good eggs.

Along toward the latter part of the hatch you may notice that the temperature in the egg chamber will be inclined to run up, even with the lamp burning lower than usual and the room temperature the same.



WHITE ORPINGTON HEN

This is because the chicks in the eggs —being living things—are giving off considerable heat, and it will be well during the last week of the hatch to acquaint yourself with about how this animal heat affects the operation of the incubator. In testing the eggs for fertility, it will be well for you to leave all doubtful eggs in the incubator.

EFFECTS OF ALTITUDE ON HENS AND THE FERTILITY OF EGGS.

Eggs are not as fertile in a high, dry altitude as in a low moist altitude and do not hatch as well.

Much care should be exercised in such a climate to give the eggs the proper moisture.

In such cases the chicks adhere to the shell and do not develop and absorb the yolk at the proper time.

Firstly:—This is due to lack of moisture and weakness of the chick, the latter of which is brought about by various causes, i. e., by weak stock, lack of proper food and nutrition to develop the germ.

Secondly:—The hen or cock may be of a nervous disposition which lessens the vitality of the germ. In such cases the fowls should be treated kindly and be kept in a quiet and happy mood.

Hens that the cock bird do not mate with properly should be removed to other pens, as all cock birds have their favorites among the flock and some of the hens may be sterile on that account.

Close observation will acquaint one with the above conditions and make the hatch of higher percentage if given proper attention.

Eggs that are set under a hen should be sprinkled with warm water at various times and especially the 19th day.

Eggs hatch better that are set on the ground in a warm dry place. The earth, no matter how dry, will provide moisture and its elements promote the development of the chicks.

In incubating we have to rely on artificial conditions and more care should be taken to produce as nearly natural conditions as possible.



ROSE COMB



PEA COMB



SINGLE COMB

THE SELECTION OF EGGS FOR HATCHING

Always select smooth symetrical eggs.

Never set a rough, ill-shaped or inferior sized egg.

According to the best authorities the smooth, oval egg will produce the majority in pullets.

The longer, peaked end eggs will produce mostly cockrels.

SOMETHING ABOUT HATCHING

I have been asked several times which is best, the incubator or the hen? If an inexperienced person wants to put his money in a sack full of holes, just buy a 400 or 500 egg size incubator. Of course an incubator man wants to sell incubators and some of them would say almost anything to get you to buy. Some would tell you that you could set an incubator in a woodshed full of cracks and holes and still have a good hatch. But you will never believe such a thing. Once a man came to me and wanted to sell me a 300-egg incubator and he told me that I could set it, and go away three weeks and then come home and have three hundred chicks. It would be the same thing as a man who came from the old country with \$1000 and another man told him to bury it in a certain place in the orchard and if he would get it the next morning there would be \$2000 instead; but next morning when he went to get his \$2000 it was gone, so it would be the same with a large size incubator.

If an inexperienced person wants to start with an incubator, better get 50 or 100-egg size, then you can learn before getting the large size, but don't put it in a woodshed full of cracks and holes, it takes a very even temperatured room. However, the best incubator is the mother hens, they are preferable as you can depend on them that they will bring a good hatch. You go to a drug store and get the bubach powder and this will kill every little louse on your hens. A hen when setting and free from lice has a red comb, just the same as when she is laying, but if the comb gets black or pale, look out for lice.

When you get your eggs, let them rest from two or three days. Then put them under a good, tried and true hen that has been dusted well with bubach powder or pyrethrium

powder to prevent lice. Set her on a nest on the ground, if possible, and away from all other fowls so she cannot be disturbed.

Give her water in a basin or wide vessel so she can get water on her wings with which to sprinkle the eggs.

Don't waste time hatching eggs from stock lacking in constitutional vigor. Breed for health, it pays.

CHICK FOOD AND BALANCED RATION MASHES

Below are given two formulas that are hard to beat and no poultryman, if he is in the business for profit, can well do



BUFF ORPINGTON

without them. For a chick food take the following:

30 parts wheat, 20 parts millet, 20 parts corn, 10 parts barley, 5 parts steel-cut oats, 5 parts granulated meat meal, 5 parts granulated bone, 5 parts pearl grit.

Crack the wheat, corn and barley at any mill, the others are already prepared. Mix well and feed dry. Never wet it. The grit, bone and meat can be had at any poultry supply house, Swift's or Armour's packing houses.

For a balanced ration mash for laying hens we use 20 parts bran, 20 parts wheat, 10 parts barley, 5 parts ground bone meal, 20 parts oats, 10 parts corn, 10 parts meat meal, 5 parts pearl grit.

Grind the wheat, barley, oats and corn fine and mix all

ingredients thoroughly together. Your fowls will lay well and the eggs will be fertile and hatch well. Feed once a day, evening preferred. Feed oats, wheat or cracked corn alternately at night.

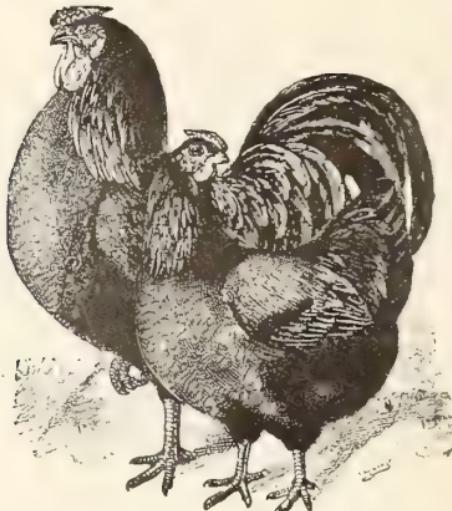
FORMULAS FOR DIFFERENT MASHES

A good dry mash for chicks is composed of:

1 part by weight wheat middlings.

1 part by weight cornmeal.

1 part by weight beef scrap.



ROSE COMB BUFF ORPINGTON

2 parts by weight wheat bran.

A good scratching feed for chicks is composed of:

1 part by weight oatmeal.

2 parts by weight cracked corn (fine).

3 parts by weight cracked wheat.

The dry mash should be kept before the chicks at all times and the grain feed be given them several times a day in litter at first and then less often until they are fed two or three times a day. See that they have plenty of green vegetable food, fine grit, charcoal and fresh water at all times.

A good dry mash feed for laying hens and growing pullets is composed of:

25 lbs. oil meal.
125 lbs. beef scrap.
150 lbs. wheat middlings.

DRY MASH FORMULA.

Cut alfalfa 20 lbs.
Wheat bran 20 lbs.
Corn meal 10 lbs.
Gluten feed 10 lbs.
Ground oats 10 lbs.
Wheat middlings 10 lbs.
Beef scraps 10 lbs.

SCRATCH GRAIN FORMULA.

Sound corn, whole and cracked 40 lbs.
Whole wheat 20 lbs.
Oats, heavy white, clipped 12 lbs.
Barley, best heavy 10 lbs.
Kaffir corn 8 lbs.
Buckwheat, silver 8 lbs.
Sunflower seed 2 lbs.

Mix and feed in deep litter twice daily. Watch appetites of birds and cut down amount if they do not work for it.

A good grain mixture for hens is made by taking

1 part by weight oats.
2 parts by weight corn.
2 parts by weight wheat.

Feed in the same manner as recommended for chicks. See that they have fresh water, grit, oyster shell and charcoal before them at all times.

FINE FEED FOR BABY CHICKS.

30 parts wheat; 20 parts millet; 20 parts corn; 10 parts barley; 5 parts steel cut oats; 5 parts granulated meat meal; 5 parts granulated bone; 5 parts pearl grit.

Above cracked and by weight. Feed dry, do not wet it. Give plenty of good fresh water at all times.

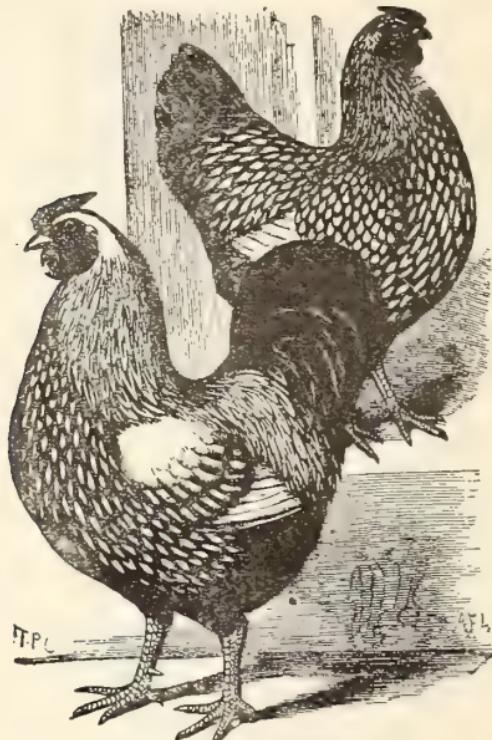
A MASH FOR LAYING HENS.

100 lbs. bran, 100 lbs. shorts, 100 lbs. corn meal, 50 lbs. cut alfalfa or alfalfa meal, cut preferred, 25 lbs. meat meal, 10 lbs. bone meal. Mix in a crumbly mash and feed in morning. Throw a little small grain in litter at noon and feed corn or wheat at night.

Avoid feeding any sloppy foods, a variety of grains cracked

is the natural feed for chickens. Some say never feed corn, we differ in this nonsensical claim as we have always raised as good chicks as any one dare raise and we always feed corn. You can't hurt a growing chick feeding corn. It will hurt a grown hen as she will get so fat she will not lay, but corn is a good feed for chicks, when mixed with other grains, there is no better grown.

Be careful in feeding linseed meal, recommended in some rations. We believe the ration is just as good or better with-



SILVER LACED WYANDOTTES

out it. Linseed meal often causes indigestion and diarrhoea and predisposes to serious intestinal and liver troubles if fed too freely.

FORMULA FOR DRY MASH.

Wheat bran 50 lbs.

Ground oats 50 lbs.

Corn meal 50 lbs.

Wheat middlings 50 lbs.
 Beef scraps 50 lbs.
 Linseed meal 30 lbs.
 Shredded alfalfa 30 lbs.
 Salt 2 lbs.
 Wood ashes 2 lbs.

The ingredients are dumped upon a smooth floor and the whole is thoroughly mixed with a scoop, and stored away to be used as needed. This formula is for winter feeding where the birds have no green food other than the alfalfa in the mash. If the hens have grass range or are fed sprouted oats, the alfalfa should be omitted from the mash.

In warm weather if the birds have free range or large yards, they will also get considerable meat food in the form of bugs and worms, and the beef scraps may be lessened accordingly. But I am writing on "Proper Food for Laying Hens in Winter," and simply mention these things so that one will not get disastrous results by feeding this mash through warm weather.

VALUABLE TABLES.

- 60 drops equal 1 teaspoonful.
- 4 teaspoonfuls equals 1 tablespoonful.
- 8 teaspoonfuls equal 1 ounce.
- 4 ounces equal 1 gill.
- 4 gills equal 1 pint.
- 2 pints equal 1 quart.
- 4 quarts equal one gallon.
- 3 gallons (about) equal 1 pailful.
- A 1 per cent solution, or 1 part to 100, is made as follows:
- $\frac{1}{2}$ teaspoonful to 1 tumbler of water.
- 1 teaspoonful to 1 pint of water.
- 10 teaspoonfuls to 1 gallon of water. ■
- $\frac{1}{2}$ tumbler to 1 pail of water.
- 1 tumbler to 6 gallons of water.
- 1 pint to 12 gallons of water.

EGG-LAYING FORMULA.

Sulphate of Soda.....	1 lb.
Flaxseed meal.....	1 lbs.
Sulphur	1 lb.
Cayenne pepper	1 lb.

Fine salt	1 lb.
Charcoal	1/4 lb.
Powdered bone	2 lbs.
Ginger	1/2 lb.
Mustard	1/4 lb.

One teaspoonful in warm mash—15 to 20 hens.

LICE FORMULAS.

No. 1.

Bisulphide of Carbon.....	4 ounces
Carbolic acid.....	.4 ounces
Creoline2 ounces
Creosote crude.....	.1/2 ounce
Coal oil	1 gallon

Thoroughly mix all together and paint on roosts and drop boards just before chickens go to roost. Keep well corked in stone jugs or tile vessel.

No. 2.

Dissolve in kerosene all it will take up of crude naphthalene flakes. One gallon of kerosene will take up about one pound of the naphthalene flakes. To this solution add half a pint of cresol and thoroughly mix. Use on roosts.

The best insect powder we know of and the most lasting in effect as well as the most expensive at first cost, though not in the long run, is strictly pure freshly ground Persian Pyrethrum flower heads. Good goods well applied have an effect that lasts for months.

CHEAP AND EFFECTIVE SOLUTION FOR EXTERMINATING MITES.

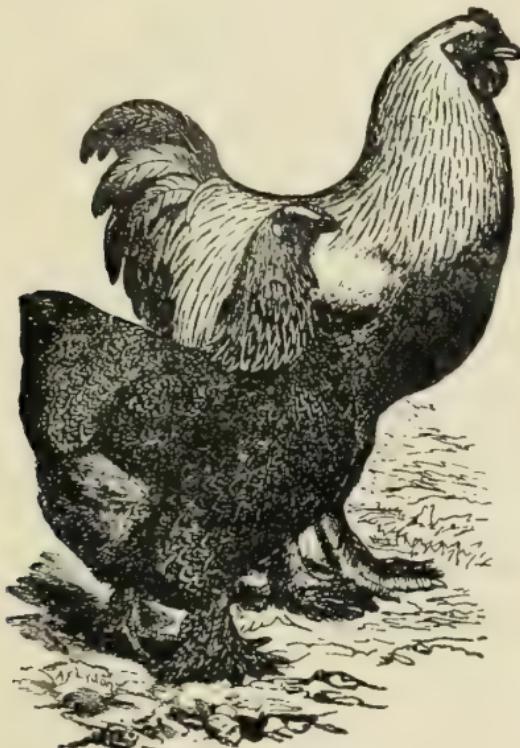
Put 15 gallons of water in a boiler and heat it to a boiling point and then add 10 lbs. common salt and let it dissolve, making a very strong brine and then add to it one ounce of OIL SASSAFRAS and stir well, and then it is ready for use. Remove everything loose in the hen house that can be removed and take the hot solution and wet every particle of the wood work in the house, including nest boxes and roosts. Put it on hot with a spray pump or whitewash brush. Be sure to get it in all the cracks and crevasses—there is where

the mites stay during the day. Be thorough with your work and you will never have any more mites. If the house is very bad go over it twice.

SPRAYING SOLUTIONS

The sulphur solution is made by heating sulphur and lime together. It is very disagreeable to make unless one is using a large amount, it is better to procure it from a dealer.

The best solution is:



DARK BRAHMAS

1 gallon coal oil.

$\frac{1}{2}$ pint crude carbolic acid.

2 ounces oil of cassia.

If spraying is well done this will exterminate all mites and lice; will also leave the house smelling sweet and clean.

**CHEAPEST AND MOST EFFECTIVE DUSTING POWDER
FOR LARGE FLOCKS AND GENERAL USE.**

Air slackened lime 20 lbs.

Flour of sulphur 4 lbs.

Tobacco dust 1 $\frac{1}{4}$ lbs.

Naphthalene (Crystallized Powdered) 1 lb.

Mix all thoroughly together and when ready for use add a few drops of Oil of Pennyroyal and a few drops of Carbolic acid. When wanted for dust boxes omit Oil of Pennyroyal and Carbolic acid, add bran and shorts in sufficient quantity to attract the birds to the boxes to scratch.

SOME GOOD CONDITION POWDERS

The following formula is one of the best we have ever used for the building up of a flock of fowls or chicks where combs look pale and feathers are rough and fewls are lazy. Take

1 oz. carbonate of iron, 1 oz. pulverized gentian root, 1 oz. black antimony, 1 oz. sulphur, 1 oz. mandrake root, 1 oz. ginger, 3 oz. carbonate of soda, 4 oz. flaxseed meal, 2 oz. pulverized charcoal. Mix well and feed an even teaspoonful in each quart of feed.

The following formula is especially adapted to use when fowls have had bad distemper, roup, or any disease where the blood wants a thorough cleansing and purifying, and alone is worth any price one could ask to any breeder of fowls:

$\frac{1}{2}$ lb. charcoal, $\frac{1}{2}$ lb. ginger, $\frac{1}{2}$ lb. gentian root, $\frac{1}{2}$ lb. golden seal, $\frac{1}{2}$ lb. sulphur, $\frac{1}{2}$ lb. May apple, $\frac{1}{2}$ lb. copperas.

Mix well. Feed one level teaspoonful in each quart of feed twice a day for one week. Skip a week and feed again as before.

FORMULA FOR WHITEWASH

Following is the formula used by the United States Government when applying whitewash to public buildings in Washington and elsewhere:

Take $\frac{1}{2}$ bushel of unslackened lime, slack it with boiling water, cover during the process to keep in steam, strain the liquid through fine sieve or strainer and add to it a peck of salt, previously dissolved in warm water; 3 lbs. of rice boiled to a thin paste and stirred in while hot, $\frac{1}{2}$ lb. Spanish whiting

and 1 lb. of glue previously dissolved by soaking in cold water and then hanging over the fire in a small pot hung in a larger one filled with water. Add 5 gallons of hot water to the mixture, stir well and let stand a few days covered from dirt. It should be applied hot, for which purpose it can be kept in a portable furnace. A pint of the mixture, if properly applied, will cover a square yard and will be almost as serviceable as paint for wood, brick or stone, and is much cheaper than the cheapest paint.

VALUABLE HINTS

In breeding for fine chicks a two year old cock and a yearling hen will bring you the best results.



COCHINS

To produce mostly pullets and few cockrels, mate a cock bird to all the hens he can possibly attend, say from 20 to 25 females, and to have mostly cockrels, mate a cockrel with 5 or 6 hens.

The more times you turn your eggs in your incubator the better they will hatch and the less cripples you will have.

Fall hatched pullets will begin laying in summer and fall when spring hatched pullets are shedding and getting ready

to lay. If you want eggs all the year round hatch them all the year round.

Don't go wild over the different systems that are being sold to thousands of people for \$1 or more as your mother's system of raising chicks was just as good as theirs; good feed and good care will raise good chicks without a system.

There is as much in the feed as there is in the breed.

Over-feeding is not feeding well, better have your hens hungry.

5 lbs. of linseed meal or oil meal in 200 lbs. of mixed grain fed in mash is very beneficial to laying stock and moulting fowls.

Animal food is very beneficial to laying hens and growing chicks, but too much is worse than none at all.

A proper amount of salt aids digestion and avoids roup, canker and gizzard worms. One ounce of salt in soft mash for 100 hens.

Oyster shells are too soft for grits. Good grit is hard and sharp.

Oyster shells fed as grit have caused lots of failures.

Laying hens must have lime, mix up sand and lime as you would for mortar and let it dry out and then break it up in chuncks and place about in yards and see the hens visit those chunks every morning. It will convince you.

Clover or alfalfa hay steamed is a good substitute for green feed in winter. Cabbage, turnips, beets and mangles are also relished.

Keep the hoppers well filled with a good dry mash.

How about oyster shells, granulated raw bone, charcoal and grit? Are the boxes full? Fill 'em up.

Don't set hens in the laying pen unless you want to get 'em all broody. The habit is "contagious" and spreads rapidly.

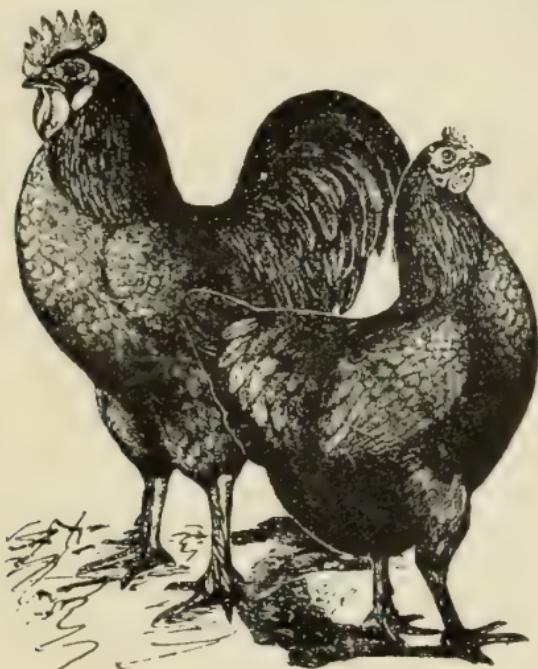
Keep your eys peeled for feather pullers. They are particularly in season now. Plenty of sprouted oats and other green stuff with a well-seasoned salt codfish hung up for the birds to pick at makes a good preventive.

Keep a record of the flocks. Do regular and systematic poultry bookkeeping. Don't leave it to guess work. Find out what they cost and what they pay, how many eggs they produce, what they sell for, and whether or not you are making

the profit you should. Right now is the time to begin.

Gather the eggs often whether you intend them hatching or for market. Don't use hen eggs for nest eggs. It is bad business and breeds trouble with the fresh egg customers, when a bad egg gets mixed with the good ones. China nest eggs are cheap. They won't make hens lay, but they help make a nest popular and often prevent egg eating.

If the hens don't get broody often enough to suit you this season try putting china nest eggs in the nest in place of the



LANGSHANS

eggs you take out, until you have a good nest full. You will soon find some good fat hens getting interested in becoming broody. Try it. Likewise, eggs gathered often and bare nests usually means less broody hens.

When sitting hens are scarce and you have an idle incubator, with not enough eggs to fill it, start the eggs in the machine. Test them out at the end of the week and give the fertile eggs to brood hens to hatch. The hens will be glad to get chicks in two weeks, you have saved time and the process

can be repeated until you have eggs enough to keep the incubator busy through a full hatch.

Also eggs that are saved up for hatching purposes—should be turned over once a day—otherwise the contents will settle to one side of the egg and when put into the incubator it will be found that many of the germs begin to develop sticking fast to the egg shell. To jar it loose afterwards is to kill it.

Don't expect to get hatchable eggs from fowls that are fat—or from flocks that have recently had disease—such as roup, cholera, gapes or the like.

Neither will starved hens lay good eggs—nor will flocks that have been kept in close confinement for any length of time produce hatchable eggs.

From this you will see the necessity of getting your eggs for hatching from flocks that have good range, i. e.: lots of room in which to run about—and that neither fat nor starved.

Also the male birds, or roosters, must be in good health, have bright red combs, not clumsy or fat, and have plenty of life. The rooster is half of the flock when it comes to getting good hatchable eggs.

Also the feed of the laying hens has a good deal to do with the eggs.

Hens that have been fed but one kind of food, such as corn or wheat, will not lay good eggs. They must have a variety of food and good pure water to drink, and live in good clean, healthful quarters, and be free from lice, mites and other vermin.

It takes no more labor or expense in the long run to keep the egg producing flocks up to where they should be than it does to allow them to shift for themselves.

Also remember that the egg producing flocks must be fed with a proper ration of animal food, such as cooked lean meat scraps and green cut bone.

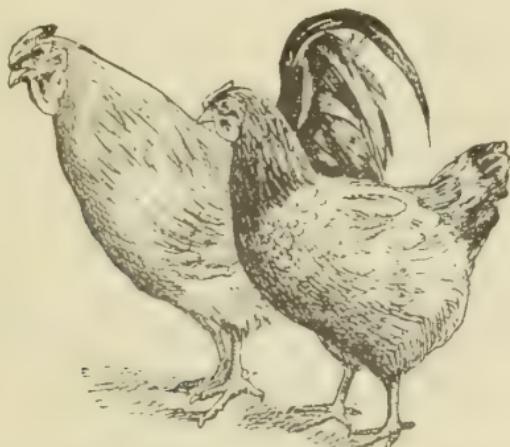
In the summer time, when the flocks have a large range, they get all kinds of green foods, bugs, insects, etc., all of which are necessary for their well-being. And during the winter, if the efficiency of the flock is to be retained as good egg producers, these elements of green and animal food must be supplied.

Cabbage, cut clover or alfalfa hay (scalded) and once in a

while boiled potatoes will supply the elements obtained by the fowls during the summer in the green foods—while cut green bone (the green bones you can get from the butcher shop, or it may be bought "ready cut") will take the place of the insects, bugs, etc., which the fowls pick in the summer.

Also remember that grit in the shape of sand and lime or glass or old pieces of crockery finely broken must be kept before the fowls at all times.

The man who keeps things clean generally makes more money than the man who "cleans up." Which class are you in neighbor?



ROSE COMB RHODE ISLAND REDS

Keep the early chicks comfortable, happy, contented, clean and well kept.

Well made outdoor brooders can be safely run under shelters having entirely open fronts, no matter if it is zero weather. Keep the space under the hover warm enough to drive the chicks to the outside edge and part out from under the felts. This is a better guide than the thermometer. You can't measure comfort with a thermometer, and comfort for the chicks is necessary to success.

Hatch as many chicks this season as you can feed and take proper care of, and no more. That is a pretty good rule to follow.

If you have rye or wheat growing this winter in your unused poultry yards try sowing in it a good clover seed

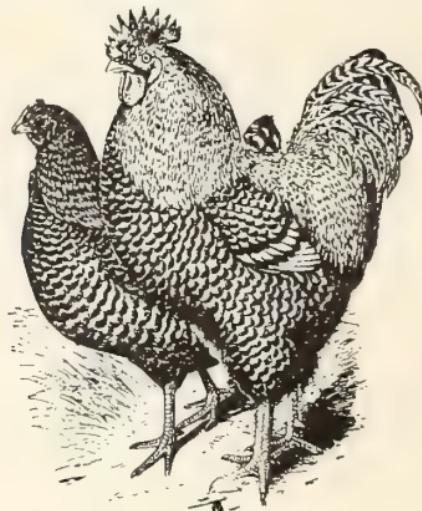
mixture as soon as the ground begins to thaw. So sown it usually catches well and will yield a good feeding crop for the fowls and chicks after the rye or wheat is cut.

Feed whole and cracked corn freely during the cold snaps. In feeding always try to cater to the appetites of the birds.

Use only strong, lusty, full-grown healthy birds in the breeding pens.

HEN THAT PAYS HER BOARD.

The sprightly hen that is always off the roost early in the morning and on hand with a fresh egg as soon as she eats her breakfast and then goes directly to work scratching about and



PLYMOUTH ROCKS

does not hover about the nest or hunt for sunny spots to nap in, is usually the hen which pays for her board bill with interest at the end of the year.

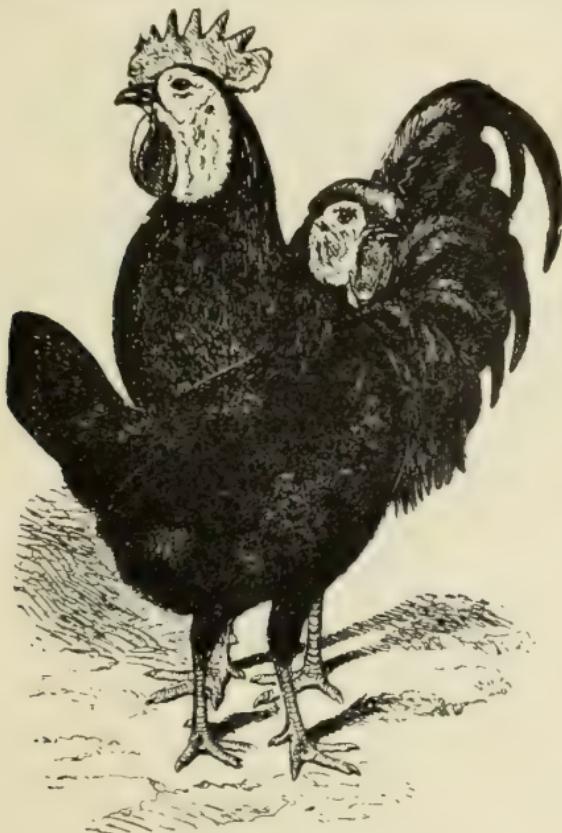
VALUE OF CHARCOAL.

The value of charcoal for poultry is best ascertained by allowing them constant access to it. Wet, filthy or old charcoal is not desirable. Do not expect fowls to eat charcoal, grit and shells the way they eat corn. Do not force it on them, but rather have it in convenient reach of the poultry and they will eat as much as they need or is good for them.

SELL SURPLUS STOCK.

Surplus stock should be converted into cash at the earliest profitable opportunity. Money talks, but it doesn't eat its head off or die of cholera or roup or some other ailment prevalent among fowls.

The first warm day clean and thoroughly scrape the drop-boards and get rid of all frozen droppings. Scatter sand loam, land plaster or clean sand over the cleaned boards, and kerosene the roosts and all cracks. In warmer climates, clean up



BLACK SPANISH

thoroughly and use disinfectants and lice killers freely to prevent mites and fleas from breeding. These pests get busy early in a genial climate.

Empty water pails at night. If neglected and they do freeze up solid set them in cold water or pour cold water over

outside and bottom to free the ice. It works better than pounding and saves the pails.

Watch out for frosted or frozen combs and wattles, especially in birds that are allowed to run out of doors from closed houses. The first pale or blue tipped comb you see, get busy. Rub first with snow or cold water.

Inspect every hen with a limp or which has a bare back and be sure to blunt the cock's toe nails, especially if he is a heavy bird. A torn back may put a good hen out of breeding condition for the balance of the season. Now is the time to prevent it.

A FEW DON'TS

DON'T feed on wet boards or ground.

- “ feed mouldy or damaged grain.
- “ market soiled or doubtful eggs.
- “ breed from pullets or deformed birds.
- “ expose fowls to storms or intense heat.
- “ be lazy and allow lice and filth.
- “ allow turkeys, ducks and gees to run with poultry.
- “ forget that putrid animal matter causes limber neck.
- “ shake eggs intended for hatching.
- “ make the same mistake twice.
- “ allow young and old stock to run together.
- “ over-fatten your stock; ; keep them busy.
- “ winter more stock than you can properly manage.
- “ crowd your fowls and invite disease.
- “ feed for twelve hours before killing.
- “ expect wonders at once—persevere.
- “ keep hens over two years old.
- “ be without a scratching shed.
- “ winter drones—market at once.
- “ forget that hen comfort means dollars.

PREVENTION OF DISEASE.

That "An ounce of prevention is worth a pound of cure" is a saying that has proven its truth for years of demonstration. Most of the diseases of poultry can be traced to carelessness or to unsanitary and dirty quarters, while the nature of the

housing, feeding, etc., must be given due attention, cleanliness is of paramount importance.

Disease germs are found wherever filth abounds.

Never mind the identity or name of the germ or germs which cause white diarrhoea. You can safely leave that to the experiment stations. What concerns you is that the germs are found both in and on the eggs and in the ovaries of the infected hens. Remember that, the breeding stock is the starting point of the trouble. You can't afford to breed dis-



HOUDANS

ease. Isn't a little effort that will prevent so much trouble worth while to you? Sure it is.

A YOLKLESS EGG.

It is impossible to give a satisfactory explanation of this phenomenon without making a careful post-mortem examination of the reproductive organs of the fowl. Even such an examination might not lead to any very conclusive results. In order to understand how the phenomenon may have occur-

red it is necessary to know the process through which the egg passes before its final extrusion, and this is rather a complicated and technical subject to deal with. Briefly, I may explain that various parts of which the egg is composed are produced separately in various regions of the oviduct in the course of its passage. On reaching the commencement of the oviduct the ovulum (commonly known as the yolk) comes in contact with the mucous membrane which lines this part of the canal, and is covered with successive layers of albumen. During this process the yolk keeps revolving, and a portion of the albumen congeals and forms a very fine membrane, which is gathered into two delicate spiral cords, by which the yolk is retained in position after the egg is complete. The egg proceeds towards the extremity of the oviduct, where the albumen is enclosed in the stout membrane which separates it from the shell, and finally it is covered with minute particles of carbonate casing. In the case of yolkless eggs the assumption is that owing to some defect in the ovary no yolk is produced in response to the natural stimulus, but that the stimulus does operate upon the other organs, which accordingly respond and proceed with their natural functions, just as if a yolk were actually present. The membrane which retains the yolk in position would have the effect of preserving a cavity in the albumen where the yolk should have been, and hence the circular hollow.

In domesticated fowls the occurrence of eggs without yolks, and double shells, are not very rare, but they are distinctly uncommon amongst wild birds.

REAL HEN FEVER.

We have it from eminent breeders that today they are greater chicken cranks than ever. If a man or woman once has the hen fever, he always has it. There is no inoculation against it. If one says that once upon a time he had the hen fever but got over it, it is sure that he never had it. Ticks cannot stick tighter than hen fever of the right brand.

Beginning with the man or woman who goes to the show in the small village for the first time, we can see that he catches the fever in a sort of way when decided that his scrubs must go and that the pure bred fowls of his heart will

take their place. He buys a few hens and a male and the coming season shows some of his birds at the local show to prove to his neighbors that he has good chickens. When he finds that some of the other boys who exhibit have better ones than he, then does he buy a Standard, join the local association, send away for a few sittings of eggs and try to beat his competitors. It takes from three to five years for him to beat the home boys and then he has the edge down to so fine a point that he wants to send a few of his birds to the



SILVER SPANGLE HAMBURGS

state show and get into hotter company just to see how much better others are than his.

When his birds come from the state show and he gets a place or two in the line of winners his joy knows no bounds. Then it is up to him to go again after the coveted ribbons and he works for a year perfecting his line up, only at the last moment to decide that it is not as good as it should be, but he ships to the big show anyhow. He is a sportsman true and blue and cannot help it. He feels the call of the ribbons and the honest sport and goes into the fight for the fun and

spirit he gets out of it. With him it is a game that he plays outside of his work. It is a thing that takes his mind off business and too close application to one thing. We have heard that the man who goes into a hobby deeply is one who takes his life work seriously and does it well.

Hen fever never leaves one if they really get it. It sticks for life. Nothing removes it. If you have it, humor it. It runs smoothest when one pets it a bit. Even if you cannot have the big farm and the large ideas all worked out, you can have as much fun out of it and as much sport as anyone.

---Contributed.

THE DISEASES OF POULTRY

APOPLEXY

This disease almost solely attacks birds that are over-fed, and these are most subject to it during hot weather or when they are excited. An attack is usually fatal at once, but where the bird is evidently not dead it should be immediately bled by cutting the vein nearest the bone under one of its wings. A good aperient should also be administered, such as eighteen grains of jalap mixed with three grains of calomel, or a small spoonful of Epson salts mixed with a wineglass full of warm water. The bird must be kept quiet and fed sparingly on non-stimulating food for some days.

Sometimes signs of an approaching attack can be observed, the bird having a staggering, unsteady gait, similar to that of an intoxicated person. In such a case it should at once be given one of the aperients before mentioned, and be placed in a cool quiet run by itself. Where one bird is attacked with this complaint, it is needful to see if the whole poultry yard is not being over-fed. If so, their diet should be lowered, and they should be given an abundance of green food.

BLACK ROT

.(See Comb Diseases.)

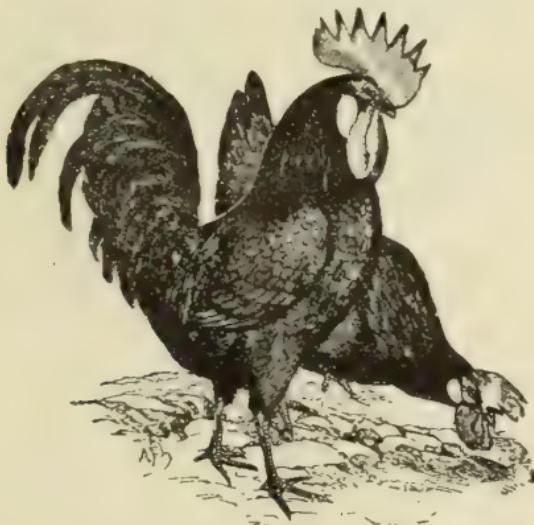
BUMBLE FOOT

Dorkings are especially subject to this ailment. It consists, as its name implies, of a gathering at the bottom of the foot. Paint the part affected with lunar caustic, or, if the

foot is very bad, apply linseed poultices to it daily until the gathering is ripe, then lance it with a sharp knife, and take out all the matter. The patient should not be allowed to roost on the perch at night, but should be bedded on straw till the foot is quite healed. The poulticing should be continued for a few days after the lancing, and if a little vaseline is applied to the spot it will soothe it.

CHOLERA

Poultry yards today are plagued with more than one disease that was altogether unknown to our grandfathers, and the most dreaded of these is undoubtedly chicken cholera. It makes its appearance in the yard, often no one knows how, and in a few weeks destroys the greater number of the birds.



BLACK MINORCAS

Preventative measures often seem absolutely useless, and in spite of everything that he can do, the owner sees his best birds carried off, one after another.

The usual causes of cholera are lack of stamina in the birds, overcrowding, uncleanliness, lack of green food, and absence of shelter from the rays of the hot sun. Drinking stale tepid water, and eating decayed vegetable matter are also frequently to blame for its origin. There can be no doubt but that is highly contagious, and one sick bird will pass the disease on to a whole yard.

When a bird is first attacked it loses its appetite looks thoroughly out of condition, its feathers are ruffled, and its eyes sunken and lacking lustre. What food it does take it seems unable to assimilate, but eagerly consumes a large amount of water. It has diarrhoea, and at first the excrement is green and slimy, but afterwards it becomes whitish and frothy, and sometimes specks of blood are found in it. The bird becomes more and more sleepy and disinclined for exertion, and at last it sinks down and dies. Occasionally convulsions immediately precedes death.

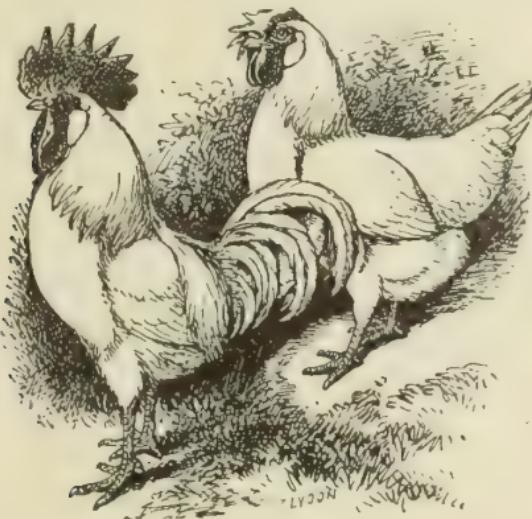
Practically there is no cure for this disease, for it runs its course so rapidly, and affects the intestines so much, that before preventative measures can have time to take effect the bird is dead. The fowl usually dies within thirty-six hours after the symptoms appear, though sometimes it lingers for several days. Post-mortem examinations show the liver to be swollen, congested with dark blood, and in such a state as not to bear handling, the spleen also is swollen, the intestines inflamed, and various other parts of the body affected.

More than one form of this disease attacks domestic poultry. Thus in 1888 a complaint broke out in a poultry farm near London, where between four and five hundred fowls were kept on a couple of acres of ground. In twelve months about four hundred birds died, in spite of every effort that was made to stamp out the epidemic. During the first two months the number of deaths was two hundred. Dr. Klein, who carefully investigated the disease, declared that though it bore a superficial resemblance to cholera it was entirely different. The bacilli found in the blood were, he said, longer and of a different kind from those found in cases of chicken cholera. But the two complaints have very much in common, as will be seen by the accompanying description of the symptoms, and they both require the same system of treatment.

"Till twenty-four to thirty-six hours before death the fowls appear perfectly right," wrote Dr. Klein, in *The Field*. "The first indication of the disease is diarrhoea of thin, yellow, frequently fluid, evacuations; the birds are quiet, but are never somnolent, which symptom is so characteristic of fowl cholera. On the next morning, or latest the day following, the animals are found dead. On post-mortem examination the

heart contains clotted blood (this is the case already a half to one hour after death,) the liver is somewhat enlarged, soft, and brittle; usually the spleen is enlarged to twice its normal size or more, and is soft and flaccid; its substance is more or less dry. The serous covering of the intestines, and particularly the mucous membrane lining the coecal appendages, is hyperoemic. The cavity of the rectum contains yellow fluid foecal matter. Hens are more susceptible to the disease than cocks."

In this case all curative measures were found practically



WHITE LEGHORNS

unavailing, and a few months afterwards the owner was obliged to move his stock to fresh ground.

Scientists have traced the cause of the complaint to bacilli present in the blood, and attempts have been made to prevent it by vaccination. Pasteur, the celebrated French chemist, investigated the matter, and he gives the following account of some experiments he made with vaccine matter he had prepared:

* "I take eighty fresh chickens which have never had the cholera either naturally produced or communicated artificially. Twenty of these I inoculate with the poison in a very virulent state—they all die. Of the remaining sixty, I take another twenty and inoculate them with a single puncture,

and with the weakest poison I have been able to get—not one of them dies. Are they, then proof against the virulent poison? Only a certain number of them are so. As a matter of fact, if I inoculate these twenty with the virulent poison, about eight or ten of them, though they become ill, do not die; far different to the other twenty fresh ones, every one of which dies.

"Again I take another twenty from the original lot and vaccinate them with two punctures, the second made seven or eight days after the first. Does this vaccination make them proof against the virulent poison? To try, I inoculate them with it. This time, in distinction to the second experiment, under which six or eight recovered, twelve or fifteen lived. Lastly, if I take the remaining twenty and inoculate them with the reduced poison, not once but three or four times, though afterwards inoculated with the virulent poison, not one will die. In this latter case the birds are brought to a state of inaptitude to take chicken cholera."

But at present the disease is not common enough in this country for vaccination to be generally practiced, and the chief means we must rely upon for fighting it are preventative measures. If fowls are kept on fresh ground, are not overcrowded, and are properly cared for, there is not much fear of their being attacked. Should a bird become ill strict repressive measures must at once be taken. Every fowl in the slightest degree affected must immediately be put right away from the others. The water which the healthy birds drink should have a piece of camphor placed in it. All the excrement must be gathered up, and the house and run have quicklime, or some other good disinfectant scattered over them. The inside of the house should be cleaned with special care, and various appliances washed with fresh lime-water in which is mixed carbolic or sulphuric acid or some similar compound.

Whatever is done towards curing the sick birds must be done on the first appearance of the disease, for in a few hours it makes such progress as to render successful treatment impossible. The following recipe, given in the American Poultry World is taken from a treatise on the subject by Dr.

Dickie: "Fowls that are too sick to eat should have every four or five hours a pill made as follows:

Blue mass.....	60 gr.
Pulverized camphor.....	25 gr.
Cayenne pepper.....	30 gr.
Pulverized rhubarb.....	48 gr.
Laudenum	60 drops

"Mix and make into twenty pills. When they have had time to act, give half teaspoonful castor oil and ten drops of laudenum to each. This treatment ought to change the character of the evacuations and make them darker and more



BLACK HAMBURGS

solid. When this happens and not before give them alum water or strong white-oak bark tea to drink, and no other drink. This will tend to check the discharges."

But the best remedy, "the hatchet cure," i. e., chopping off the head of the sick bird. Great care must be taken not to spread the complaint by going immediately from the sick fowl among the healthy stock, or by carrying anything from one to the other. When the bird dies its body must be placed where none of the others can ever get near it; the best thing to do with it is to burn it.

COMB DISEASES

There are two forms of comb diseases, one of which Black Rot, commonly attacks Spanish; while the other, White Comb, is most frequently found among Cochins. In Black Rot the comb of the bird turns a black color, the fowl becomes weak, it gradually pines away, and at last it dies. The complaint is caused by derangement of the liver. For treatment, give the bird a dose of Epsom salts, and feed it chiefly on soft food. It must have plenty of green stuff, especially common dandelion.

White Comb may be detected by small white spots coming on the comb; these gradually extend down the neck, causing the feathers to come off. The bird may be treated the same as for Black Rot. A very old and efficient mixture for outward application on the parts attacked is made of two parts—by weight—of turmeric, combined with one part of cocoanut oil.

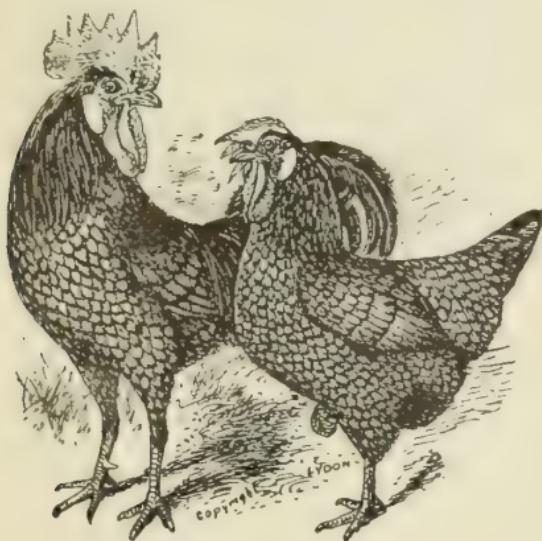
CRAMP

Cramp is brought on by exposure to the wet, and it can be prevented by giving the fowls better shelter. When the birds are attacked the simplest remedy is to rub their legs with liniment, and to make their food a little more stimulating. In sever cases, the fowls should be bedded on straw or on peat moss, and not allowed to roost.

Chickens are very subject to cramp, especially during the cold, wet spring months. Sometimes this is caused by the wet, and sometimes also by the chickens having to run over a hard wooden or stone floor. This seems to prevent the blood from flowing freely through their legs, and so brings on the cramps. If the boards or stones are covered with a layer of straw, peat moss, fine earth, or any loose substance, the chickens can then run over them without taking any harm. When chickens are attacked with cramp treat them much the same as adult fowls. Keep them in a dry, covered run, rub their legs with a liniment. If any chicken is very bad, it will be found advisable to bring it into the house, and to place it in a basket lined with flannel in front of the fire for a day or two. When it is better care must be taken not to expose it to the cold air too suddenly.

CROP-BOUND

It is no uncommon thing for the crops of fowls to become so full of food or some other substance that they cannot assimilate it. The consequence is that the fowl is unable to swallow anything and naturally it pines away. The causes of crop-binding are various. Frequently the fowl swallows some foreign substance, such as a piece of bacon rind, a lump of matted grass, or some similar article. It manages to get this as far as its crop, but there the thing sticks, and refuses to go any farther, blocking up the passage to the stomach, and finally preventing the bird from swallowing anything else. Again, a fowl will at times gorge itself with a quantity of dry food, until its crop becomes unduly distended. Then the bird



ANDALUSIANS

goes and has a drink; this causes the food to swell, the crop becomes yet more distended, and loses its power of elasticity. In order to cure the bird, its crop must be emptied. To do this, first pour a little warm water down its throat, and gently knead the crop with the hand for a few minutes. Leave the bird for about an hour, and then repeat the operation. This time pour a little sweet oil down its throat. If this does not do any good take the bird between the knees

with its head downwards, and try to force the food in the **crop** into the mouth by pressing the crop downwards.

If all these measures fail to have an effect after they **have** been repeatedly tried, it will be necessary, as a last resort, **to** cut the crop open and empty it. This should only be done **in** very extreme cases, when everything else has failed.

There should be two persons to perform the operation, **the** operator and his assistant. Let the assistant take the **bird** in his lap, and keep it quite still by holding the base of the two wings with one hand, and the legs with the other. **The** operator will require a very sharp knife, a small article, such as the back of a spoon, with which to empty the crop, **and** some thread for sewing it up. All the instruments, and also the hands of the operator, must be dipped in diluted carbolic lotion. First make a straight cut in the upper part of **the** crop, about an inch in length, and then take out all the **contents** of the crop through it. Wash the crop, and sew it **up** again. The thread used for the sewing should be either **horse** hair or cat gut, not any vegetable substance, and the **two** skins must not be sewn together. After the operation the **bird** should be fed very sparingly on soft food only, and **for** the first day it should not have any water. It must not be allowed to have any whole grain for at least a week **afterwards**.

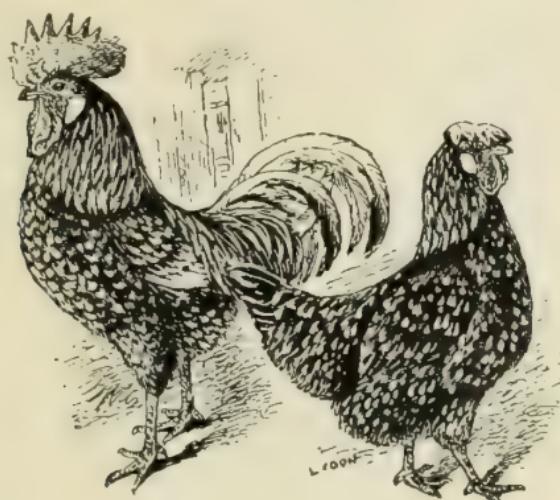
DIARRHOEA

Diarrhoea is a complaint that many breeders do not take notice of, but it is weakening, and when signs of it appear the matter ought to be attended to. The simplest medicine is powdered chalk. A dose of about 20 grains of compound chalk powder morning and night, for a couple or three days, ought to affect a cure. If it is preferred, the chalk may be mixed with a bird's food. It ought to be fed on boiled **rice**, milk, and other non-stimulating foods. If the chalk does **not** do any good, and the diarrhoea increases in severity, a **dose** or two of sulphate of iron should be given in drinking water.

EGG-BOUND

Hens sometimes produce such large eggs that they **are** unable to pass them. When this is the case, the **bird** **goes** more than once to the nest, and sits there some time. **When**

it comes off, it walks about with a mopish air. If it is suspected a hen is egg-bound it should be very quietly caught, and felt about the vent. If it is egg-bound, the person handling it will be able to feel a hard substance (the egg) there. The best remedy is to apply some olive oil up the vent, either by means of a syringe or an oil feather. Birds inclined to be egg-bound should not be fed on stimulating or fattening foods, such as corn. Egg-binding is frequently due to these causes.



ANCONAS

EGG-EATING

This vice is frequently caused by lack of shell forming material. In their craving for it, the hens eat their egg shells to obtain some, and they soon acquire a liking for the eggs themselves. One hen quickly teaches the others, and in a short time the habit will spread among all the birds in the yard. They soon become so expert they cause every egg to disappear as soon as it is laid, without leaving a trace of it remaining. Frequently, while a poultry-keeper cannot understand why his hens do not give him any eggs, the fowls are all the time laying well, but they clear up their eggs so quickly that he never obtains a sight of them.

Birds in confined runs, where they have no chance of picking up worms or other insects, are the chief offenders, and this fact suggests a probable cause and cure.

In attempting to cure egg-eating hens, the first thing to do is to give them a liberal supply of shell-forming material. This alone will sometimes stop them. If not, a number of eggs should be emptied of their contents, and filled with mustard; if these are laid about their nests the birds will attempt to eat them, under the impression that they are genuine eggs. The taste of the hot mustard will teach them a lesson, and after a few such attempts hardly a hen will touch an egg again. If a number of rotten eggs are left about the house they affect a cure in the same way, viz: by causing the hens to become so disgusted with the taste that they refuse to touch any more of them.

Egg-eater's nests will often be found useful. These are so arranged as to cause the eggs to roll out of reach of the hens as soon as they are laid. Their chief drawback is that the hens often refuse to lay an egg. There are several special makes on the market.

ELEPHANTIASIS

(See Scaly Legs.)

FEATHER-EATING

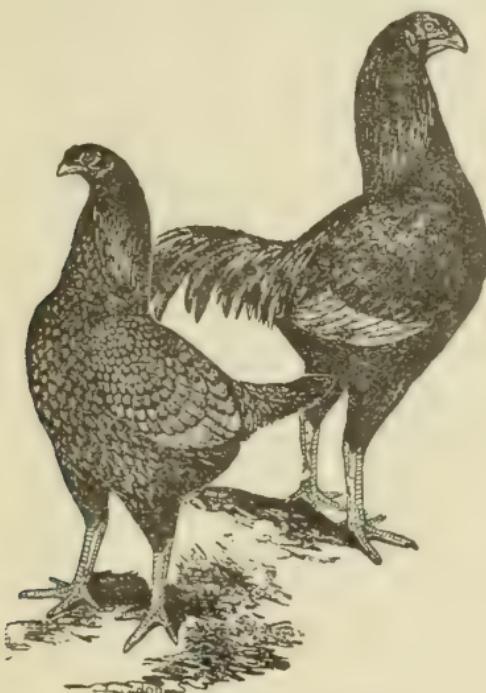
This habit is one to which the lighter breeds are more addicted than the heavier, and unfortunately the example is contagious. If the bird commences it, the others soon follow suit. There are many different causes of it. Sometimes it is excessive animal food, sometimes lack of it; sometimes over-feeding, sometimes thirst. To cure the birds, the first thing to be done is to give them a complete change of diet, letting them have an abundance of green food. The bird that has its feathers picked should have those parts of its body that are attacked washed every day with a solution of creolin, or some similar non-poisonous compound.

As it is highly probable that lack of occupation at least helps to make poultry feather-eaters, it will be well to try and find them some occupation. If their house is thickly strewn with straw or peat moss litter, and a handful of corn is every now and then thrown among it, the fowls will employ themselves in scratching for the grain; their green food can also be tied up a little way, so that they will have to jump up every time they want to get at it.

GAPES

This disease is chiefly confined to chickens, and is due to the presence of small worms in the throat. These obstruct the air-passage, so that the bird has to continually open its mouth and gape in the effort to breath, hence the name of the disease.

There are numerous methods of treating gapes. One common way is to take a feather, strip all the down off of it, except a little at the point, dip this point in turpentine, place



INDIAN GAME

it down the throat of the chicken, and after giving a twist or two round to pull it out. The worms are often extracted from the throat with the feather. This plan, however, requires care, or else the chicken may be choked. In very mild cases it may be sufficient to place a little camphor or a small quantity of turpentine in the drinking water. Another, and a very effective cure, is to cause the chicken to inhale the fumes of carbolic acid. When the acid is heated it gives off a quantity of fumes. Hold the head of the bird among the fumes so

that it inhales them, taking care at the same time that they are not sufficiently dense to suffocate it. This will very likely require repeating two or three times in order to thoroughly destroy the gape-worms. It is well to dust the chicken house and run with fresh lime after a case of gapes has appeared there.

INJURED COMBS AND WATTLES

To stop the bleeding, put some flour upon the injured parts, as it will help coagulate the blood. Let the fowl alone for a day or so and then bathe the parts in warm water and anoint with vaseline or carbolic salve to heal.

LEG WEAKNESS

This complaint is usually found among young cocks of heavier breeds, and it is caused either by wrong feeding, too rapid growth, or breeding from weakly parents. Give the sick bird some bone-meal in its food, add a little tonic to its drinking water, and let it have a plentiful supply of lime, old mortar, and crushed oyster shells.

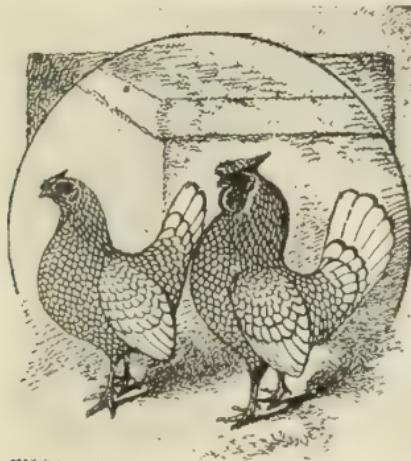
LIVER DISEASE

It is largely caused by in-breeding, and over-stimulation. Never breed from birds that are in the slightest degree affected with it. Mild cases may sometimes be cured by an abundance of green food and careful dieting, but where the disease has got well hold of the system the best thing to do is to kill the bird.

MOULTING

Strictly speaking, moulting is not a disease at all, but as during the time it is taking place the birds are below par, and require extra attention, it will be advisable to treat it here. It occurs every autumn, when the fowls throw off their old feathers, and new ones grow in their place. As a rule, the older the bird is, the later in the year its moult takes place. The earlier in the season poultry can get their moult over, the better it is for them, and the more chance there is of their commencing to lay during the winter. The two chief points to be attended to during moulting time are to keep the birds warm and dry, and to feed them more liberally than usual.

They should have a good supply of fresh meat, and a little of some spicy condiment occasionally may be given to them. If the new feathers do not come easily, a small quantity of flour of sulphur—say a spoonful for half a dozen fowls—given two or three times a week will help them along; a tonic will also do the birds good at this time. The old hen-wives' plan of putting a rusty iron nail in the drinking water is not at all a bad one. Those who want a more elaborate preparation can use Douglas mixture, which is made as follows: Take one ounce of diluted sulphuric acid and half pound of sulphate of iron, dissolve them together, and add



SEABRIGHT BANTAMS

two gallons of spring water. The mixture to be added to the drinking water in the proportion of one teaspoonful to every pint of water.

PALE YOLKS

The eggs of some breeds are naturally of a paler color than those of others, but sometimes eggs have an unnatural paleness that is preventable. This paleness is generally found in the eggs of birds that are kept in the confines of runs, and it is an indication that the hens are below par. The most common cause is the lack of green stuff, and the cure lies in giving the hens an abundance of that article.

RHEUMATISM

Rheumatism should be treated in the same manner as cramp. It strongly resembles that disease in outward symptoms, except that in sometimes it is accompanied by swelling of the joints, and cramp is not.

ROUP

Roup causes more deaths in poultry yards than any other disease. The first of its appearance is a simple cold. The bird coughs and sneezes, its eyes are red, its plumage is somewhat ruffled, and there is a watery discharge from its nostrils. At this stage the disease can easily be cured; but if it is neglected the symptoms soon become more serious. The discharge acquires an offensive smell, and at the same time hardens and gathers about the nostrils and throat of the bird; the head swells, often to such a degree as to close the eyes. The fowl refuses all food and mopes continually. Frequently there is a rattling in the throat, and unless preventative measures are soon taken the invalid dies.

As roup is highly contagious it is necessary to remove a fowl right away from all the other stock as soon as it shows the least sign of it. If this is not done, the healthy birds are almost certain to become affected. The invalid should be removed to a dry, warm shed, and be given plenty of nourishing food, to which some pepper has been added. If it refuses to eat, as it probably will, some meal must be made into little rolls, each slightly smaller than a woman's finger, and these should be forced down its throat, two or three times a day. Too much food must not be given this way, however, or else it will do more harm than good. It is well to remember that a sick bird cannot digest so much as a healthy one, and if too much food is forced into its crop it will weaken it rather than add to its strength.

In the first stages of the disease the best remedy undoubtedly is a homeopathic tincture of aconite. The dose is one minum or one drop of the tincture two or three times a day. If the face is swollen it must be washed with marm water, in which is mixed a little creoline. It is necessary to be careful to dry the face properly after it has been washed, or else the bird will catch more cold. Some medicine will also

be required. A slight aperient should first be given to lessen the feverishness which is always present in roup; a little jalap, or half teaspoonful of Epsom salts dissolved in warm water will be sufficient. A small piece of camphor should be placed in the water that the bird drinks, and also in water of the healthy stock; with the latter it acts as a preventive. There are innumerable special roup medicines on the market, some of which are very good and others simply useless. Unless the breeder knows of some thoroughly effective medicine, prepared by a reliable vendor of poultry medicines, he had better have one of the recipes given below compounded, and use it. Most of the best medicines for roup contain oil of copaiba and cayenne pepper; these have been found to be among the most effective drugs for curing roupy poultry. The following is a recipe that has been largely used, and is of great value:

Balsam of copaiba	1 oz.
Powdered Licorice	$\frac{1}{2}$ oz.
Piperine	1 drachm

mixed together, add about $\frac{1}{2}$ oz. of magnesia, and make the whole into 60 pills.

Besides attending to the sick bird, it will be necessary to take precautionary measures among the healthy stock to prevent the disease from spreading. It has also been recommended to place a little camphor in the drinking water. In addition to this their food must be made slightly stimulating, and their house should be examined in order to discover if it is at all draughty or damp; if it is, ? . ? ?

SOME ROUP CURES:

Get some two decimeter tablets of bin-iodide of mercury, and for large birds give two tablets night and morning. Use permanganate of potash or solution No. 5 in drinking water to drink. Only the worst cases will need the bin-iodide of mercury.

Another good roup cure is this: Take 5 drops of carbolic acid, 5 grs. of permanganate of potash, 1 oz. of water, put all together; give 30 drops of the solution 4 times a day; bathe the eyes and head with it; after symptoms disappear give a good condition powder in feed.

For colds take turpentine, coaloil, lard and camphor, equal parts; bathe head two or three times a day.

Another fine remedy for colds is: 10 grs. quinine sul., 10 grs. doveri pulv., 5 grs. capsicum, fill No. 3 capsules; give 1 capsule every four hours.

If you have a valuable bird and you like to save it if possible, and its mouth and throat show signs of canker, take Solution No. 5, 1 oz. permanganate of potash, $\frac{1}{2}$ oz. potash, $\frac{1}{2}$ oz. phosphate of soda, 1 oz. salt, 4 oz. carbonate of iron. Place all in one gallon stone jug and fill with water. Let stand until dissolved. Take a little in a stone or earthen cup and ten parts of water. Swab the bird's mouth and throat. Inject a little into his nose. If eyes are bad, wash them with it and two or three applications will cure. Put enough in drinking water to turn purple the drink.

For bad cases of roup use the hatchet just back of the head.

For running at the nose and colds, sometimes called roup, use the Douglas mixture as follows: 1 lb. copperas, 1 oz. vitriol, 1 gal. water. Dissolve copperas and add vitriol in one gallon stone jug. Use one tablespoonful of this solution in 16 quarts of water for the fowls to drink. Shut them in where they can't get any other water to drink and they will soon recover. Treat the whole flock. This will also cure what people call cholera and diarrhoea, but you must be sure they get no other water to drink, and at all times feed good, sweet grain, as nothing will give your fowls cholera quicker than musty grain or dirty water to drink.

SCALY LEGS:

Birds whose legs become scaly must be kept in dry runs. Every morning their legs should be washed in hot water, use a hard brush and plenty of soap, and taking care to scrub them well. After the legs are dried, rub them over with sulphur ointment, or with the following preparations given by Mr. Alfred Hemsley in "Fowls."

Lard	2 oz.
Arsenic	10 gr.
Sulphur	2 drachms
Glycerine	$\frac{1}{2}$ oz.
Spirits of Camphor	2 drachms

or hold their legs in coal oil a minute or two will usually effect a cure.

SOFT-SHELLED EGGS:

Soft-shelled eggs are usually caused by the hens not having sufficient materials out of which to make their shells. This should be remedied by giving them a plentiful supply of grit, kitchen ashes, old mortar, and broken oyster shells. Sometimes the complaint is brought on by other causes than lack of shell forming materials. Overstimulation, the too rapid production of eggs, and inflammation of the egg organs will cause it. In such a case the hen shoud be kept quiet, giving it a chance to diet, and not letting it have anything in the slightest degree stimulating. A week or two of rest from laying will go a long way toward making a fowl well.

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